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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/688,502

10/17/2003

Tsung-Neng Yang

1970-1

1965

7590

06/29/2005

John S. Egbert
Harrison & Egbert
7th Floor
412 Main Street
Houston, TX 77002

EXAMINER

RICHARDS, N DREW

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,502

Applicant(s)

YANG ET AL.

Examiner

N. Drew Richards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19 and 21 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 18, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (USPUB 2002/0163007, Matsumoto) in view of Kung et al. (U.S. Patent No. 5,420,732 B1, Kung).

With regard to claim 18, Matsumoto discloses in figure 1d a light emitting device with a current blocking structure (10). Matsumoto discloses in figure 1d a substrate (1). Matsumoto discloses in figure 1d an epitaxial structure positioned on the substrate, wherein the epitaxial structure includes a bottom cladding layer (3), an upper cladding layer (5), a light-emitting layer (4) positioned between the bottom cladding layer and the upper cladding layer, and a window layer (6) positioned on the upper cladding layer. Matsumoto discloses in figure 1d an ohmic contact electrode (8) positioned on the epitaxial structure. Matsumoto discloses in figure 1d a current blocking structure (10) positioned inside the epitaxial structure, wherein the current blocking structure extends from a region below the ohmic contact electrode and the current blocking structure has an area that is smaller than an area of the ohmic contact electrode. Matsumoto is silent to the current blocking structure extending at least to the light-emitting layer. Kung teaches in figure 24 and column 16, lines 47 – 51 a current blocking structure (53)

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positioned inside the epitaxial structure, wherein the current blocking structure extends from a region below an ohmic contact electrode (58) at least to the light-emitting layer. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the depth of the current blocking layer of Kung in the device of Matsumoto in order to provide enhanced current blocking as stated by Kung in column 16, lines 47 – 51.

With regard to claim 19, Matsumoto is silent as to a contact layer means provided between the window layer and the ohmic contact electrode for spreading current laterally. Kung teach in figure 24, a contact layer means 80 positioned between the window layer 76 and the ohmic contact electrode 58 for spreading current laterally. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the contact layer means 80 of Kung in the device of Matsumoto because efficient current spreading is critical to the performance of an LED and it is desirable to have applied current uniformly and quickly spread out over an LED device before the current reaches the p-n junction as taught by Kung column 3 lines 55-59.

With regard to claim 21, Matsumoto teaches in figure 1d wherein the ohmic contact electrode has a bottom surface and the current blocking structure extends from the bottom surface of the ohmic contact electrode.

Allowable Subject Matter

3. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments filed 3/25/05 have been fully considered but they are not persuasive.

Applicant's arguments against the previous anticipation rejection over Kung is moot in view of the new grounds of rejection.

Applicant also argues that Matsumoto and Kung are not combinable because they are contradictory teachings and thus teach away from the combination. Applicant bases this argument on Kung's current blocking structure preferably being larger than the second electrode while Matsumoto's is smaller. Applicant also bases this argument on their belief that Matsumoto teach a semi-insulated current blocking structure instead of the conductive oxide current blocker of Kung. In the first instance, Kung's "preferably" larger current blocking structure is merely a preferred embodiment. A preferred embodiment is not an explicit teaching away from other embodiments or configurations. In this case, the current blocking structure of Kung figure 24 is described on column 16 lines 46-65 where Kung explicitly teaches that the deeper current blocking structure (extending though or even beyond the lower surface of the window layer) typically provides enhanced current blocking. Since Matsumoto is clearly

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concerned with achieving current blocking (as their layer 10 is referred to as a "current blocking layer") Kung is concerned with the same problem and explicitly teaches a desirable structure to improve the current blocking. Further, Matsumoto only teach a semi-insulating current blocking structure in one embodiment. They also teach in figure 1d the current blocking structure being conductive (n-type region for forming the current blocking layer 10) in paragraph [0026]. Thus, Matsumoto does not teach away from using the deeper current blocking structure of Kung and the rejection is considered proper.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, motivation for the combination of references comes only from knowledge which was within the level of ordinary skill in the art at the time of the claimed invention, i.e. directly from the applied references.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

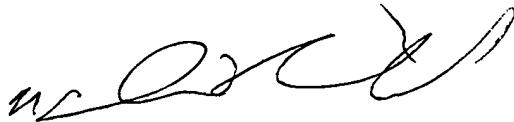
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on Monday-Friday 9:00-5:00.

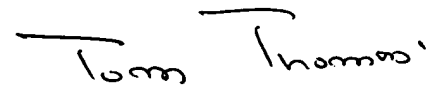
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NDR



TOM THOMAS
SUPERVISORY PATENT EXAMINER